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Hydrogen sulphide synthesis in GtoPdb v.2023.1

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Abstract

Hydrogen sulfide is a gasotransmitter, with similarities to nitric oxide and carbon monoxide. Although the enzymes indicated below have multiple enzymatic activities, the focus here is the generation of hydrogen sulphide (H_2S) and the enzymatic characteristics are described accordingly. Cystathionine β-synthase (CBS) and cystathionine γ-lyase (CSE) are pyridoxal phosphate (PLP)-dependent enzymes. 3-mercaptopyruvate sulfurtransferase (3-MPST) functions to generate H_2S; only CAT is PLP-dependent, while 3-MPST is not. Thus, this third pathway is sometimes referred to as PLP-independent. CBS and CSE are predominantly cytosolic enzymes, while 3-MPST is found both in the cytosol and the mitochondria. For an authoritative review on the pharmacological modulation of H_2S levels, see Szabo and Papapetropoulos, 2017 [8].

Contents

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Database links

Hydrogen sulphide synthesis
https://www.guidetopharmacology.org/GRAC/FamilyDisplayForward?familyId=279
- Enzymes
  - CBS(Cystathionine β-synthase)

https://www.guidetopharmacology.org/GRAC/ObjectDisplayForward?objectId=1443
CSE(Cystathionine γ-lyase)
https://www.guidetopharmacology.org/GRAC/ObjectDisplayForward?objectId=1444
CAT(L-Cysteine:2-oxoglutarate aminotransferase)
https://www.guidetopharmacology.org/GRAC/ObjectDisplayForward?objectId=1445
MPST(3-Mercaptopyruvate sulfurtransferase)
https://www.guidetopharmacology.org/GRAC/ObjectDisplayForward?objectId=1446

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